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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
HAN, CLEMENCE S	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/621,257	SREEMANTHULA ET AL.	
	Examiner	Art Unit	
	Clemence Han	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 3, 9-13, 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Regarding claim 3, the number in parenthesis "(65535)" in line 5 renders the claim indefinite because it is unclear whether the limitations in the parenthesis is part of the claimed invention. See MPEP § 2173.05(d).

4. Regarding claim 9, the term in parenthesis "(RFC2001)" in line 6 renders the claim indefinite because it is unclear whether the limitations in the parenthesis is part of the claimed invention. See MPEP § 2173.05(d).

5. Claim 9 recites the limitations "the congestion window" and "the predetermined rate" in line 3. There is insufficient antecedent basis for this limitation in the claim.

6. Claim 10 recites the limitation "the congestion window" in line 4. There is insufficient antecedent basis for this limitation in the claim.

7. Claim 12 recites the limitation "the congestion window" in line 4. There is insufficient antecedent basis for this limitation in the claim.

8. Regarding claim 15, the number in parenthesis "(65535)" in line 13 renders the claim indefinite because it is unclear whether the limitations in the parenthesis is part of the claimed invention. See MPEP § 2173.05(d).

9. Regarding claim 16, the phrase "means by which the based on acknowledgements indicating successful receipt of the segments receives an indication of low congestion" renders the claim indefinite and unclear.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claim 1, 2, 9, 14 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilson (US Pub. 2001/0032269).

Regarding to claim 1, Wilson teaches a method for use in accelerating throughput of segments from a sender to a receiver, the sender and receiver each including a protocol layer for sending and receiving the segments, the method including: step in which the sender protocol layer transmits segments at a rate of

transmission and increases the rate of transmission based on feedback the sender receives from the receiver [0046]; the method characterized by: a step which the sender receives an indication of low congestion; and a step in which, in response to the indication low congestion, the sender increases the data transmission rate so as to achieve increased throughput [0047].

Regarding to claim 2, Wilson teaches the sender protocol layer is a transport layer of transmission control protocol and in the step in which the sender protocol layer transmits segments at a rate of transmission, the sender protocol layer starts a congestion window at a size of a starting number of segments and initially increases the congestion window by one segment each time it receives an acknowledgement for a segment it has sent [0008].

Regarding to claim 14, Wilson teaches a telecommunication device, including a protocol layer for sending and receiving segments, the telecommunication device also including: means by which the protocol layer transmits segments at a rate transmission and increases the rate of transmission based on acknowledgements indicating successful receipt of the segments [0046]; the telecommunication device characterized by: means by which the telecommunication device receives an indication of low congestion; and means by which, in response to the indication of low congestion, the telecommunication

device increases the data transmission rate so as to achieve increased throughput [0047].

Regarding to claim 9, Wilson teaches the sender protocol layer grows the congestion window at the predetermined rate of one segment for every received positive acknowledgement, but adjusts the rate based on standard congestion principles in the event of an indication of other than low congestion [0008].

Regarding to claim 16, Wilson teaches a telecommunication system, comprising a plurality of intermediate nodes and also a plurality of telecommunication devices, wherein at least one of the telecommunication devices includes a protocol layer for sending and receiving segments, the telecommunication device including: means by which the protocol layer transmits segments at a rate of transmission and increases the rate of transmission based on acknowledgements indicating successful receipt of the segments [0046]; the telecommunication device characterized by: means by which the based on acknowledgements indicating successful receipt of the segments receives an indication of low congestion; and means by which, response to the indication of low congestion, the telecommunication device increases the data transmission rate so as to achieve increased throughput [0047].

Regarding to claim 17, Wilson teaches a computer program product comprising: computer readable storage structure embodying computer program code thereon for execution by a computer processor in telecommunication device having a protocol layer for sending and receiving segments, with said computer program code including instructions for performing: a step in which the protocol layer transmits segments at a rate of transmission and increases the rate of transmission based on acknowledgements the sender receives from the receiver [0046]; the computer program characterized by including instructions for performing: a step in which the telecommunication device receives an indication of low congestion; and a step in which, in response to the indication of low congestion, the telecommunication device increases the data transmission rate so as to achieve increased throughput [0047].

Regarding to claim 18, Wilson teaches a method for use by a telecommunication device, the telecommunication device including a protocol layer for sending and receiving segments to and from another telecommunication device, the method characterized by: a step in which the telecommunication device performs a process of congestion detection [0043]; and a step in which the protocol layer transmits an indication of low congestion to the other telecommunication device [0045].

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claim 3, 10-13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson in view of RFC 2001 (January 1997).

Regarding to claim 3, Wilson teaches a method for use in accelerating throughput of segments from a sender to a receiver, the sender and receiver each including a protocol layer for sending and receiving the segments, the method including: step in which the sender protocol layer transmits segments at a rate of transmission and increases the rate of transmission based on feedback the sender receives from the receiver [0046]; the method characterized by: a step which the sender receives an indication of low congestion; and a step in which, in response to the indication low congestion, the sender increases the data transmission rate so as to achieve increased throughput [0047]. Wilson also teaches the sender protocol layer is a transport layer of transmission control protocol and in the step in which the sender protocol layer transmits segments at a rate of transmission, the sender protocol layer starts a congestion window at a size of a starting number of

segments and initially increases the congestion window by one segment each time it receives an acknowledgement for a segment it has sent [0008]. Wilson, however, does not teach the sender performs an accelerated start in which the sender sets slow start threshold to a standard initial value and re-initializes the congestion window value to a new predetermined value to achieve increased throughput, and then grows the congestion window at a predetermined rate in respect to received positive acknowledgments. RFC 2001 teaches the sender performs an accelerated start in which the sender sets slow start threshold to a standard initial value and re-initializes the congestion window value to a new predetermined value to achieve increased throughput, and then grows the congestion window at a predetermined rate in respect to received positive acknowledgments (section 4. Fast Recovery). It would have been obvious to one skilled in the art to modify Wilson to use an accelerated start with re-initialized the congestion window value as taught by RFC 2001 in order to improve throughput (section 4. Fast Recovery Line 1-4).

Regarding to claim 10, Wilson teaches a method for use in accelerating throughput of segments from a sender to a receiver, the sender and receiver each including a protocol layer for sending and receiving the segments, the method including: step in which the sender protocol layer transmits segments at a rate of

transmission and increases the rate of transmission based on feedback the sender receives from the receiver [0046]; the method characterized by: a step which the sender receives an indication of low congestion; and a step in which, in response to the indication low congestion, the sender increases the data transmission rate so as to achieve increased throughput [0047]. Wilson, however, does not teach the step of performing an accelerated start is performed after a connection between the sender and the receiver is first established, and further wherein the congestion window is initially set to a higher value than is used in standard transmission control protocol. RFC 2001 teaches the step of performing an accelerated start is performed after a connection between the sender and the receiver is first established, and further wherein the congestion window is initially set to a higher value than is used in standard transmission control protocol (section 4. Fast Recovery). It would have been obvious to one skilled in the art to modify Wilson to use the congestion window initially set to a higher value than is used in standard transmission control protocol as taught by RFC 2001 in order to improve throughput (section 4. Fast Recovery Line 1-4).

Regarding to claim 11, Wilson teaches the protocol layer is a transmission control protocol layer and the indication of low congestion is based on the value of a bit in a header or is otherwise provided with a received TCP SYN or TCP

SYN/ACK sent to the sender by either the receiver or by an intermediate node along the communication path or by centralized node outside or along the path [0047].

Regarding to claim 12, Wilson teaches a method for use in accelerating throughput of segments from a sender to a receiver, the sender and receiver each including a protocol layer for sending and receiving the segments, the method including: step in which the sender protocol layer transmits segments at a rate of transmission and increases the rate of transmission based on feedback the sender receives from the receiver [0046]; the method characterized by: a step which the sender receives an indication of low congestion; and a step in which, in response to the indication low congestion, the sender increases the data transmission rate so as to achieve increased throughput [0047]. Wilson, however, does not teach the step of increasing the data transmission rate is performed after transferring to a new path between the sender and the receiver for an existing connection, and further wherein the congestion window for the new path is initially set to the value for the congestion window when the path transfer occurred. RFC 2001 teaches the step of increasing the data transmission rate is performed after transferring to a new path between the sender and the receiver for an existing connection, and further wherein the congestion window for the new path is initially set to the value for the

congestion window when the path transfer occurred (section 4. Fast Recovery). It would have been obvious to one skilled in the art to modify Wilson to use the congestion window initially set to a higher value than is used in standard transmission control protocol as taught by RFC 2001 in order to improve throughput (section 4. Fast Recovery Line 1-4).

Regarding to claim 13, Wilson teaches the protocol layer is a transmission control protocol layer and the indication of low congestion is based on the value of a bit in a header or is otherwise provided with a received TCP ACK sent to the sender by either the receiver or by an intermediate node along the communication path or by a centralized node outside or along the path [0047].

Regarding to claim 15, Wilson teaches a telecommunication device, including a protocol layer for sending and receiving segments, the telecommunication device also including: means by which the protocol layer transmits segments at a rate transmission and increases the rate of transmission based on acknowledgements indicating successful receipt of the segments [0046]; the telecommunication device characterized by: means by which the telecommunication device receives an indication of low congestion; and means by which, in response to the indication of low congestion, the telecommunication device increases the data transmission rate so as to achieve increased throughput

[0047]. Wilson also teaches the sender protocol layer is a transport layer of transmission control protocol and the means by which the sender protocol layer transmits segments at a rate transmission includes means by which the sender protocol layer starts a congestion window a size of a starting number of segments and initially increases the congestion window by one segment each time it receives an acknowledgement for a segment it has sent [0008]; Wilson, however, does not teach the sender performs an accelerated start in which the sender sets slow start threshold to a standard initial value and re-initializes the congestion window value to a new predetermined value to achieve increased throughput, and then grows the congestion window at a predetermined rate in respect to received positive acknowledgments. RFC 2001 teaches the sender performs an accelerated start in which the sender sets slow start threshold to a standard initial value and re-initializes the congestion window value to a new predetermined value to achieve increased throughput, and then grows the congestion window at a predetermined rate in respect to received positive acknowledgments (section 4. Fast Recovery). It would have been obvious to one skilled in the art to modify Wilson to use an accelerated start with re-initialized the congestion window value as taught by RFC 2001 in order to improve throughput (section 4. Fast Recovery Line 1-4).

14. Claim 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson in view of Qaddoura (US 6,646,987).

Regarding to claim 4-8, Wilson teaches a method for use in accelerating throughput of segments from a sender to a receiver, the sender and receiver each including a protocol layer for sending and receiving the segments, the method including: step in which the sender protocol layer transmits segments at a rate of transmission and increases the rate of transmission based on feedback the sender receives from the receiver [0046]; the method characterized by: a step which the sender receives an indication of low congestion; and a step in which, in response to the indication low congestion, the sender increases the data transmission rate so as to achieve increased throughput [0047]. Wilson, however, does not teach specific wireless access protocol to be used. Qaddoura teaches TCP congestion control in wireless environment 10. It would have been obvious to one skilled in the art to modify Wilson to be used in different access protocol as taught by Qaddoura in order to optimize transfer rate in different network using TCP (Column 8 Line 14-34).

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to the invention in general.

U.S. Patent 6,754,200 to Nishimura et al.

U.S. Patent 6,493,316 to Chapman et al.

U.S. Patent 6,105,064 to Davis et al.

U.S. Patent 6,205,120 to Packer et al.

U.S. Patent 6,625,118 to Hadi Salim et al.

U.S. Pub. 2003/0149785 to Gerla et al.

U.S. Pub. 2003/0156542 to Connor

U.S. Pub. 2003/0112754 to Ramani et al.

U.S. Pub. 2005/0018617 to Jin et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Clemence Han whose telephone number is (571) 272-3158. The examiner can normally be reached on Monday-Thursday 7 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

C. H.

Clemence Han
Examiner
Art Unit 2665

STEVEN NGUYEN
PRIMARY EXAMINER